WT Docket No. 04-356
WT Docket No. 02-353

To: Office of the Secretary
Federal Communications Commission
Washington, DC 20554

Comment Filed by: Cindy Sage
Sage Associates
1396 Danielson Road
Santa Barbara CA 93108
e-mail: sage@silcom.com
Tel: (805) 969-0557

November 19, 2004

Introduction

I submit the following in response to the FCC's request for comment relating to the tentative conclusion set forth in the "RF Safety" section of the Notice of Proposed Rule Making adopted September 9, 2004 in Docket Nos. 04-356 and 02-353 (paragraph 114). That section sets a threshold for environmental review of 1000 watts of effective radiated power ("ERP") and asserts that this will prevent human exposure to potentially unsafe levels of radio frequency ("RF") radiation in compliance with the National Environmental Policy Act (NEPA).

I oppose the FCC's adoption of the proposed rules as superficial, arbitrary and capricious, and I urge the FCC to initiate or request thorough and comprehensive research and study of the rule's impact on human health using a biological approach.

Low intensity radiofrequency radiation (RF) bioeffects and health effects that have been reported in numerous scientific studies in peer-reviewed journals warrant new biologically-based standards. The current IEEE SC-4 process to evaluate literature relevant to low-intensity RF effects is seriously flawed, and the FCC has historically adopted whatever recommendations come from IEEE. The FCC needs to initiate a rule-making process to adopt new, low-intensity RF standards that are protective of public health related to chronic, non-thermal levels of RF and which are biologically rather than thermally based. The FCC particularly cannot rely upon recommendations from the IEEE with respect to radiofrequency radiation that are based on a new and highly limited definition on RF effects, adverse effects and hazard that is prejudicial to the interest of the public, and counter to the World Health Organization (WHO) Constitution

principle on health.

There are more than four hundred studies reporting bioeffects and/or health effects at low-intensity (non-thermal) levels, and only about 108 studies of low-intensity RF effects showing no effect (Sage, 2004). FCC standards must be developed to address low-intensity bioeffects and adverse health effects, and proper safety factors applied below those RF levels reported to cause such effects.

The IEEE SC-4 (Subcommmittee 4) has developed new and unacceptable definitions of "effect", "adverse effect" and "harm". The SC-4 IEEE C95 revision working group has defined adverse as:

"An adverse effect is a biological effect characterized by a harmful change in health. For example, such changes can include organic disease, impaired mental function, behavioral dysfunction, reduced longevity, and defective or deficient reproduction. Adverse effects do not include: biological effects without a detrimental health effect, changes in subjective feelings of well-being that are a result of anxiety about RF effects or impacts of RF infrastructure that are not related to RF emissions, or indirect effects caused by electromagnetic interference with electronic devices. An adverse effects exposure level is the condition or set of conditions under which an electric, magnetic or electromagnetic field has an adverse effect."

Further:

"If an effect is of such an intense nature that it compromises the individual's ability to function properly or overcomes the recovery capability of the individual, then the 'effect' may be considered a hazard. In any discussion of the potential for 'biological effects', from exposure to electromagnetic energies we must first determine whether any 'effect' can be shown; and then determine whether such an observed 'effect' is 'hazardous.'"

In contrast, WHO has issued a draft framework (WHO EMF Program Framework for Developing EMF Standards - Draft October 2003) to address how the Program will assess the adequacy of scientific information, and accepted definitions of bioeffect, adverse health effect and hazard. The WHO definition (Paragraph 3.1) states that:

"(A)nnoyance or discomforts caused by EMF exposure may not be pathological per se, but, if substantiated, can affect the physical and mental well-being of a person and the resultant effect may be considered as an adverse health effect. A health effect is thus defined as a biological effect that is detrimental to health or well-being. According to the WHO Constitution, health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity."

The FCC needs to initiate a new rule-making to establish RF standards for wireless communications and data that are relevant to the growing scientific reports of bioeffects and adverse health effects at intensities below current FCC standards (thermally-based standards). The FCC needs to establish an independent, scientific assessment process to identify low-intensity bioeffects and relevant biomarkers for developing new non-thermal standards. Finally, the FCC needs to advise the public about prudent public health actions that should be taken with respect to RF exposures related to wireless communications and data.

(Sage CL. 2004. An Overview of Low-Intensity Radiofrequency/Microwave Radiation Studies Relevant to Wireless Communications and Data. Bioelectromagnetics Society Annual Meeting, Washington DC.)

Conclusion

I propose that the FCC postpone the implementation of its proposed rules relating to the broadband spectrum for advanced wireless services until the completion and thorough review of the low-intensity RF research and studies. The FCC needs to initiate a rule-making process to adopt new, low-intensity RF exposure guidelines that are protective of public health related to chronic, non-thermal levels of RF and which are biologically rather than thermally based.

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